

---

# Monitoring Changes for OTC Sources

Theresa Alexander

US EPA, Clean Air Markets Division (CAMD)

October, 2001



# OTC NOx Budget Monitoring

---

- ◆ Currently OTC NOx Budget sources use two guidance documents and individual state rules to monitor NOx mass.
  - Guidance for Implementation of Emission Monitoring Requirements for the NOx Budget Program
  - NOx Budget Program Monitoring Certification and Reporting Instructions (EDR 2.0)



# Subpart H Monitoring

---

- ◆ Subpart H is similar, but not the same as OTC monitoring requirements
- ◆ Subpart H monitoring requirements are in Part 75 of the CFR.
- ◆ Reporting under Subpart H is in EDR 2.1.



# Subpart H Monitoring

---

- ◆ Additional tools are available to ease your transition
  - OTC Sources under the Federal NO<sub>x</sub> Budget Trading Program: Guidance on Changing Monitoring Methods and Upgrading Monitoring Plans to EDR v2.1
  - Monitor Certification Guidelines for the NO<sub>x</sub> SIP Call and Section 126 Trading Programs
  - CAMD representative



# Certification Applications for OTC Monitoring Systems

---

- ◆ States may waive formal application process for existing, certified OTC monitoring systems that meet, by the compliance date:
  - The QA requirements of § 75.74(c), and
  - If applicable, the Part 75 fuel flowmeter accuracy and/or appendix E test requirements
- ◆ Still must report the results of all QA tests in the appropriate quarterly report



## Certification Applications for OTC Monitoring Systems (cont.)

---

- ◆ New monitoring systems must undergo all of the required certification tests by the compliance date



# Subpart H Monitoring

---

- ◆ NO<sub>x</sub>
  - NO<sub>x</sub> emission rate CEMS
  - NO<sub>x</sub> concentration CEMS with Stack flow monitor
  - Appendix E correlation curves (peaking units)
- ◆ Heat Input
  - Stack flow monitor & diluent CEMS
  - Appendix D, hourly fuel flow (oil & gas units)
- ◆ LME offers small sources a non-CEMS alternative



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Relative Accuracy for NO<sub>x</sub> CEMS
  - OTC allows relative accuracy of 20% for non Acid Rain Program sources.
  - Subpart H requires relative accuracy of 7.5% for annual testing frequency and 10% for semi-annual testing frequency.





# OTC CEMS Monitoring

---

- ◆ Low emitter alternative specifications for NO<sub>x</sub> RATA's under OTC
  - An average rate of  $< 0.200$  lb/mmBtu if the reference method average is within  $\pm 0.04$  lb/mmBtu of the CEMS average.



## Subpart H CEMS Monitoring

---

- ◆ Low emitter alternative specs for NO<sub>x</sub> emission rate RATA's under Subpart H
  - average NO<sub>x</sub> emission rate < 0.200 lb/mmBtu during RATA
    - » CEMS mean value is within  $\pm 0.015$  lb/mmBtu of the reference mean value for annual frequency
    - » use  $\pm 0.020$  lb/mmBtu for semi-annual frequency
  - Max BAF of 1.111



# OTC CEMS Monitoring

---

- ◆ Low emitter alternative specs for NO<sub>x</sub> concentration RATA's under Subpart H
  - average NO<sub>x</sub> concentration <250 ppm during RATA
    - » the mean value of CEMS is within +/- 12 ppm of the reference method mean value for annual frequency
    - » use +/- 15 ppm for semi-annual frequency
  - BAF max of 1.111



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Relative Accuracy for moisture systems.
  - OTC allows 15% RA with alternative of 1% moisture
  - Subpart H allows 7.5% RA with alternative spec of 1.0% moisture for annual frequency
  - Subpart H allows 10% RA with alternative of 1.5% moisture for semi-annual frequency.



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Different monitoring options for moisture under Subpart H.
  - Under OTC defaults are allowed for oil and gas only but no values are given
  - Under Subpart H defaults are allowed for coal and wood but not for oil and gas.



# Part 75 Testing Requirements

---

- ◆ DAHS Verification required
  - Formula and missing data routine verifications
  - Also required when changing from EDR 2.0 to EDR 2.1
  - Refer to Policy Question 14.96



# OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Additional certification testing requirements
  - 3-point linearity check (not a 2-point CGA)
  - Cycle time test
  - 7 day calibration error
  - Bias tests for NO<sub>x</sub> and flow required
  - Fuel flowmeter accuracy test and Appendix E testing, if applicable



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Subpart H allows a 2 load quality assurance RATA.
  - » Requires historical load analysis to determine two most frequently used loads.





# OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Single Load Flow RATA
  - Different criteria for application to base load units
    - » Operation at a single load > 90% for OTC
    - » Operation at a single load > 85% for Subpart H



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Flow to Load or Gross Heat Rate check required under Subpart H.
  - Data analysis of flow and unit load or gross heat rate as flow monitor QA.
  - Complex situations may be exempted from test.



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Quarterly linearity test
  - Subpart H allows a linearity exemption for monitors with spans of less than or equal to 30 p.p.m.
  - OTC allows 72 hour unit or stack operating grace period.
  - Subpart H allows 168 hour unit or stack operating grace period.



## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ Daily Calibration Error Test
  - Calibration gases must conform to latest EPA protocol (Appendix A § 5.1.4).
  - Subpart H allows the use of mid range calibration gases in place of the high range calibration gases (Appendix A § 6.3.1).



# OTC CEMS Monitoring

---

- ◆ NO<sub>x</sub> MPC, span and range under OTC for uncontrolled units
  - Determine MPC
  - Determine High Range Span
  - Determine Analyzer Range
  - Only required to use dual range if it is required for another state or federal program.



# OTC CEMS Monitoring

---

- ◆ NO<sub>x</sub> MPC, span and range for units with controls.
  - Determine Low Range Span
  - Determine Analyzer Range (20% - 80%)
  - Required to install dual range if low range is exceeded more than 72 hours in ozone season.



# OTC CEMS Monitoring

---

- ◆ NO<sub>x</sub> MPC, MEC, span and range under Subpart H for any unit
  - Determine MPC
  - Determine Span from MPC
  - Determine high range
  - Determine MEC (if applicable)
  - Compare MEC to high range
  - Dual range if  $MEC < 20\%$  of high range



## OTC to Subpart H CEMS Reporting Differences

---

- ◆ Annual Span and Range Evaluation
  - Not required under OTC
  - Required under Subpart H
- ◆ Used to determine if span and range are appropriate
- ◆ Requirement to change span and range if majority of emissions not within 20%-80% range of monitor.





## OTC to Subpart H CEMS Monitoring Differences

---

- ◆ The provisions for a default high range analyzer are different under Subpart H.
  - Under OTC a 72 hour limit on use of a default high range during uncontrolled operation is allowed during the ozone season. (MPC)
  - Under Subpart H unlimited use of a default high range is allowed when using 200% of MPC.



## OTC to Subpart H Monitoring Differences

---

- ◆ Conditionally Valid Data
  - May not allowed under OTC
  - May be used under Subpart H (§75.20(b)(3) but only for a certain number of hours
    - » for data collected prior to certification
    - » for data collected during recertification and QA testing periods



## OTC to Subpart H Monitoring Differences

---

- ◆ Use of Max Heat Input in lieu of monitoring for any size unit
  - Allowed under OTC
  - Not allowed under Subpart H



## OTC to Subpart H Monitoring Differences

---

- ◆ Ozone Season Only NO<sub>x</sub> Mass Reporting for CEMS.
  - Not allowed under OTC
  - Allowed under Subpart H, if state agrees
  - Different reporting and QA schedules for partial year reporters.



## Subpart H Missing Data

---

- ◆ For SIP Call or Section 126 sources that report NO<sub>x</sub> mass only during the ozone season, use the standard Part 75 missing data procedures, but include only ozone season data in the lookback periods



## OTC to Subpart H App D&E Monitoring Differences

---

- ◆ Fuel flowmeter calibrations
  - Under OTC, every 4 QA operating quarters and at least every 2 years.
  - Under Subpart H, every 4 QA operating quarters or at least every 20 calendar quarters, and
    - » for orifice-type fuel flowmeter, a visual inspection of orifice plate every three years.



## OTC to Subpart H App D&E Reporting Differences

---

- ◆ Fuel flow-to-load option
  - Not allowed under OTC
  - Under Subpart H a source may perform a data analysis to allow extensions of fuel flowmeter QA testing up to 20 calendar quarters (Appendix A §7.8)



## OTC to Subpart H App D&E Reporting Differences

---

- ◆ Fuel sampling options for fuel GCV and heat input for units using appendix D fuel flowmeters to determine heat input:
  - OTC requires monthly samples of fuel for GCV and density, if necessary.
  - Subpart H allows tank sampling for GCV and density under many conditions.





## OTC to Subpart H LME Reporting Differences

---

- ◆ Changes to default methodologies under OTC for Low Mass Emitters
  - Applicability is different
  - Monitoring is different
  - Watch for potential rule changes in this section.



# OTC to Subpart H LME Reporting Differences

---

- ◆ Applicability
  - Peaking unit or any unit with HI less than 250 mmBtu/hr under OTC
  - Mass emission limit under Subpart H
    - » Less than 25 tons of NO<sub>x</sub> during ozone season
    - » Less than 50 tons of NO<sub>x</sub> annually
    - » Must be met using 3 previous years historical HI data and default emission rate



# OTC to Subpart H LME Reporting Differences

---

- ◆ LME Monitoring
  - 1.15 multiplier applied to the results of the Appendix E testing for fuel-and-unit specific NOx emission rate under Subpart H
  - Minor differences in apportioning Heat Input under Subpart H
  - MDC software can be used to generate the entire EDR for LME units under Subpart H

